In the Claims:

1. (Currently Amended) An implantable electrode, which comprises:

a) a substrate;

b) a biocompatible and electrically conductive intermediate coating supported on the substrate; and

c) a carbon-containing coating comprising amorphous carbon having a random carbonaceous structure with no covalent bonding adhered to the intermediate coating.

2. (Original) The electrode of claim 1 wherein the substrate is selected from the group consisting of tantalum, titanium, zirconium, iridium, platinum, and niobium.

3. (Original) The electrode of claim 1 wherein the substrate is sintered platinum/iridium.

4. (Original) The electrode of claim 1 wherein the intermediate coating is selected from the group consisting of carbon, boron, platinum, iridium, gold, titanium, tantalum, niobium, ruthenium, zirconium, iridium oxide, iridium nitride, titanium nitride, titanium carbide, titanium carbonitride, tantalum nitride, tantalum carbide, tantalum carbonitride, niobium carbide, niobium nitride, niobium carbonitride, ruthenium oxide, ruthenium nitride, zirconium oxide, zirconium nitride, zirconium carbide, titanium dioxide doped with niobium, diamond doped with boron, and mixtures thereof.

5. (Currently Amended) The electrode of claim 1 wherein the carbon-containing coating is ~~amorphous carbon or amorphous carbon~~ doped with nitrogen.

6. (Original) The electrode of claim 5 wherein the nitrogen is provided in the carbon-containing coating at a concentration of about 1 ppm to about 57 atomic percent.

7. (Original) The electrode of claim 1 wherein the carbon-containing coating is characterized as having been deposited by at least one of the group consisting of sputtering, evaporation, a pyrolytic process, and chemical vapor deposition.

8. (Original) The electrode of claim 1 wherein the substrate is characterized as having its surface area increased by at least one method selected from the group consisting of sinter processing, micromachining, grit blasting, and chemical etching.

9. (Original) The electrode of claim 1 wherein the intermediate coating has a first thickness of about 0.1 μm to about 20 μm.

10. (Original) The electrode of claim 1 wherein the carbon-containing coating has a second thickness of about 10 nm to about 1.0 μm.

11. (Currently Amended) An implantable electrode, which comprises:

a) a substrate comprising platinum and iridium;

b) a biocompatible and electrically conductive intermediate coating comprising titanium nitride or diamond doped with boron supported on the substrate; and

c) an amorphous carbon-containing coating having a random carbonaceous structure with no covalent bonding adhered to the intermediate coating.

12. (Original) The electrode of claim 11 wherein the carbon-containing coating is doped with nitrogen.

13. (Currently Amended) A method for providing an implantable electrode, comprising the steps of:

a) providing a substrate comprising platinum and iridium;

b) coating an intermediate layer selected from the group consisting of carbon, boron, platinum, iridium, gold, titanium, tantalum, niobium, ruthenium, zirconium, iridium oxide, iridium nitride, titanium nitride, titanium carbide, titanium carbonitride, tantalum nitride, tantalum carbide, tantalum carbonitride, niobium carbide, niobium nitride, niobium carbonitride, ruthenium oxide, ruthenium nitride, zirconium oxide, zirconium nitride, zirconium carbide, titanium dioxide doped with niobium, diamond doped with boron, and mixtures thereof on the substrate;

c) sputtering a carbon-containing coating comprising amorphous carbon having a random carbonaceous

structure with no covalent bonding to the intermediate layer; and

d) utilizing the coated substrate as an implantable electrode.

14. (Canceled)

15. (Currently Amended) The method of claim [14] 13 including doping the amorphous carbon with nitrogen.

16. (Original) The method of claim 13 including providing the intermediate coating having a first thickness of about 0.1 µm to about 20 µm and the carbon-containing coating having a second thickness of about 10 nm to about 1.0 µm.